

WHAT IS CLAIMED IS:

1. A transmitting apparatus for transmitting a layer structure of a directory which manages public key certificate information in a layer manner, comprising:

5 managing means for making certificate authority information correspond to a container entry which can store its own subordinate information, making end entity information correspond to a leaf entry which is under domination of said container entry and cannot store its own subordinate information, and managing a layer structure of a directory constructed by said container entry and said leaf entry;

10 15 detecting means for detecting a change of said layer structure of said directory which is managed by said managing means and obtaining differential information constructed by a difference of the change of the layer structure of said directory on the basis of a detection result; and

20 transmitting means for transmitting said differential information detected by said detecting means,

25 wherein information which can obtain latest public key certificate information and lapse information of said latest public key certificate information are stored into said container entry

and/or said leaf entry.

2. An apparatus according to claim 1, wherein
said lapse information is a serial number of said
public key certificate information.

5 3. An apparatus according to claim 1, wherein
one of said latest public key certificate
information and the information for obtaining said
latest public key certificate information can be
selected and stored into attributes of said
container entry and/or said leaf entry.

10 4. An apparatus according to claim 3, wherein
the information which is stored into said attributes
can be changed between said latest public key
certificate information and the information for
obtaining said latest public key certificate
information in accordance with an elapsed time from
an updating event in which said difference has been
detected by said detecting means.

15 5. A transmitting method of transmitting a
layer structure of a directory which manages public
key certificate information in a layer manner,
comprising:

20 a managing step of making certificate
authority information correspond to a container
entry which can store its own subordinate
information, making end entity information
correspond to a leaf entry which is under domination

of said container entry and cannot store its own subordinate information, and managing a layer structure of a directory constructed by said container entry and said leaf entry;

5 a detecting step of detecting a change of said layer structure of said directory which is managed by said managing step and obtaining differential information constructed by a difference of the change of said layer structure of said directory on the basis of a detection result; and

10 a transmitting step of transmitting said differential information detected by said detecting step,

15 wherein information which can obtain latest public key certificate information and lapse information of said latest public key certificate information are stored into said container entry and/or said leaf entry.

20 6. A receiving apparatus for receiving a transmitted layer structure of a directory which manages public key certificate information in a layer manner, comprising:

25 receiving means for making transmitted certificate authority information correspond to a container entry which can store its own subordinate information, making end entity information correspond to a leaf entry which is under domination

of said container entry and cannot store its own
subordinate information, and receiving differential
information comprising a difference of a change of a
layer structure of a directory which is constructed
5 by said container entry and said leaf entry and
obtained on the basis of a detection result obtained
by detecting the change of said layer structure of
said directory;

10 managing means for managing said layer
structure of said directory constructed on the basis
of said differential information received by said
receiving means; and

15 changing means for selectively fetching
said differential information and changing said
layer structure of said directory which is managed
by said managing means,

20 wherein information which can obtain
latest public key certificate information and lapse
information of said latest public key certificate
information are stored into said container entry
and/or said leaf entry and transmitted.

7. An apparatus according to claim 6, wherein
said lapse information is a serial number of said
public key certificate information.

25 8. An apparatus according to claim 6, wherein
said changing means selectively fetches updating
information of said container entry and/or said leaf

entry corresponding to a certificate information
pass for obtaining said public key certificate
information.

9. A receiving method of receiving a
5 transmitted layer structure of a directory which
manages public key certificate information in a
layer manner, comprising:

10 a receiving step of making transmitted
certificate authority information correspond to a
container entry which can store its own subordinate
information, making end entity information
correspond to a leaf entry which is under domination
of said container entry and cannot store its own
subordinate information, and receiving differential
15 information comprising a difference of a change of a
layer structure of a directory which is constructed
by said container entry and said leaf entry and
obtained on the basis of a detection result obtained
by detecting the change of said layer structure of
20 said directory;

a managing step of managing said layer
structure of said directory constructed on the basis
of said differential information received by said
receiving step; and

25 a changing step of selectively fetching said
differential information and changing said layer
structure of said directory which is managed by said

managing step,

wherein information which can obtain latest public key certificate information and lapse information of said latest public key certificate information are stored into said container entry and/or said leaf entry and transmitted.

10. A transmitting and receiving system for transmitting a layer structure of a directory which manages public key certificate information in a layer manner and receiving the transmitted layer structure of said directory, comprising:

15 first managing means for making certificate authority information correspond to a container entry which can store its own subordinate information, making end entity information correspond to a leaf entry which is under domination of said container entry and cannot store its own subordinate information, and managing a layer structure of a directory constructed by said 20 container entry and said leaf entry;

25 detecting means for detecting a change of said layer structure of said directory which is managed by said first managing means and obtaining differential information constructed by a difference of the change of said layer structure of said directory on the basis of a detection result;

transmitting means for transmitting said

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differential information detected by said detecting
means;

5 receiving means for receiving said
differential information transmitted by said
transmitting means;

10 second managing means for managing said
layer structure of said directory constructed on the
basis of said differential information received by
said receiving means; and

15 changing means for selectively fetching
said differential information and changing said
layer structure of said directory which is managed
by said second managing means,

20 wherein information which can obtain
latest public key certificate information and lapse
information of said latest public key certificate
information are stored into said container entry
and/or said leaf entry.

25 11. A system according to claim 10, wherein
said lapse information is a serial number of said
public key certificate information.

12. A system according to claim 10, wherein
one of said latest public key certificate
information and the information for obtaining said
latest public key certificate information can be
selected, stored into attributes of said container
entry and/or said leaf entry, and transmitted.

13. A system according to claim 12, wherein
the information which is stored into said attributes
can be changed between said latest public key
certificate information and the information for
obtaining said latest public key certificate
information in accordance with an elapsed time from
an updating event in which said difference has been
detected by said detecting means and transmitted.

14. A system according to claim 10, wherein
said changing means selectively fetches updating
information of said container entry and/or said leaf
entry corresponding to a certificate information
pass for obtaining said public key certificate
information.

15. A transmitting and receiving method of
transmitting a layer structure of a directory which
manages public key certificate information in a
layer manner and receiving the transmitted layer
structure of said directory, comprising:

20 a first managing step of making
certificate authority information correspond to a
container entry which can store its own subordinate
information, making end entity information
correspond to a leaf entry which is under domination
25 of said container entry and cannot store its own
subordinate information, and managing a layer
structure of a directory constructed by said

container entry and said leaf entry;

5 a detecting step of detecting a change of
said layer structure of said directory which is
managed by said first managing step and obtaining
differential information constructed by a difference
of the change of said layer structure of said
directory on the basis of a detection result;

10 a transmitting step of transmitting said
differential information detected by said detecting
step;

15 a receiving step of receiving said
differential information transmitted by said
transmitting step;

20 a second managing step of managing said
layer structure of said directory constructed on the
basis of said differential information received by
said receiving step; and

25 a changing step of selectively fetching
said differential information and changing said
layer structure of said directory which is managed
by said second managing step,

 wherein information which can obtain
latest public key certificate information and lapse
information of said latest public key certificate
information are stored into said container entry
and/or said leaf entry.